

Study: A Controlled Laboratory Evaluation of SunTech VET technology and Doppler on Cats and Dogs

While there are no mandatory veterinary clinical requirements, SunTech has recognized the need and obligation to study veterinary populations. A controlled trial was conducted at the North Carolina State University College of Veterinary Medicine comparing our vet NIBP algorithm to the Parks Ultrasonic Doppler Flow Detector Model 811-B. While Doppler typically does not provide a Diastolic value, the technology is universally accepted in Veterinary Medicine to provide Systolic values. A wide variety of animal subjects were used in this comparison to better replicate actual conditions in a Veterinary Clinic.

Methodology*

Data collection included gathering pre and post Doppler measurements where oscillometric NIBP measurements were taken in between. This pattern was performed sequentially three times. Both the pre and post Doppler values were calculated by performing three sequential Doppler measurements which were averaged together to minimize variability due to technique errors and patient physiological changes. All measurements were performed on both alert and sedated/anesthetized dogs and cats. In general, most dogs were anesthetized and most cats were awake. Animal conditions varied from healthy to critical to more closely replicate real conditions in a veterinary environment. The majority of animals had some sort of health issue ranging from dental prophylaxis to brain surgery. Subject blood pressures included hypotensive, normotensive and hypertensive. Weights and ages for cats varied from 1.3 to 10 kg (2.9 to 22.0 lb) and 8 weeks to 17 years old. For dogs, weights were 8 to 44 kg (17.6 to 97 lb) and ages were 1 to 13 years old. A total of 29 cats and 20 dogs were involved in this study. Since Doppler measurements only provide a Systolic measurement, comparisons for Diastolic, mean arterial pressure (MAP) and heart rate were not performed.

Results

SunTech – Doppler Systolic Accuracy Comparison

	Mean Error
Cats (n = 29) most awake	-2.7
Dogs (n = 20) most sedated	1.1

Mean errors less than +/- 5 mmHg are considered acceptable by non-invasive blood pressure clinical standards when compared to a gold standard of accuracy. In veterinary medicine, both Doppler and Direct BP measurement (intra-arterial transducer) are considered to be valid references when evaluating oscillometric NIBP devices.

** The ACVIM clinical protocol guideline was introduced after this study occurred otherwise data collection and analysis would have followed this guideline.*